

# HMEC 46

Bedienungsanleitung  
Instructions for use  
Notice d'emploi  
Istruzioni per l'uso  
Instrucciones para el uso  
Gebruiksaanwijzing





## Safety instructions

- Please read these instructions carefully and completely before using the headset.
- Make these instructions easily accessible to all users at all times.
- Always include these instructions when passing the headset on to third parties.
- During flight operation, do not use the headset for telephone calls.
- With the NoiseGard™ active noise compensation switched on, typical aircraft sounds (for example, those from engines, propellers, warning alarms, etc.) may sound different to you. Before operating any aircraft, make sure that, with NoiseGard™ switched on, you can hear and recognize these sounds. Set the volume to safe levels that do not interfere with your ability to hear informational sounds and warning alarms.
- The headset is capable of producing sound pressure levels exceeding 85 dB(A). In many countries 85 dB(A) is the maximum legally permissible level for continuous noise exposure during the working day. Exposure to sounds of higher volume levels or for longer durations can permanently damage your hearing!
- Never repair or attempt to repair a defective headset yourself. Contact your Sennheiser agent or the Sennheiser Service Department.

- Only replace those parts of the headset whose replacement is described in this manual. All other parts of the headset must be replaced by your Sennheiser agent.
- Protect the headset from humidity. Use only a slightly damp cloth to clean the headset. For information on how to clean the headset, contact your Sennheiser agent.

### Intended use of the headset

Intended use includes:

- having read these instructions especially the chapter "Safety instructions".
- use of the headset in jet aircraft and within the operating conditions as described in these instructions.

### Improper use

Improper use means use of the headset other than as described in these instructions or use under operating conditions different from those described in these instructions.

## The HMEC 46 headset

The HMEC 46 headset with NoiseGard™ active noise compensation features dynamic, open headphones. The noise-compensating condenser microphone ensures excellent speech transmission even in noisy environments. Designed for use in aircraft cockpits.

### Features

- NoiseGard™ active noise compensation reduces ambient noise by approx. 10 dB – consequently the radio volume can be decreased
- Extremely lightweight
- Extremely comfortable to wear due to the patented two-piece automatic headband and soft ear pads
- Peak level protection safeguards you from volume peaks above 110 dB
- “Flip-away” headphone allows single-sided listening
- Flexible microphone boom, can be worn on either left or right-hand side
- Noise-compensating condenser microphone ensures excellent speech transmission
- Single-sided cable, easy to replace
- With NoiseGard™ switched off, the headset can be used as a conventional headset
- Power supply for NoiseGard™ from aircraft DC power supply system (on suitably equipped aircraft) or batteries/rechargeable batteries
- “Auto shut-off” extends battery life
- ETSO/TSO approval C57a/C58a

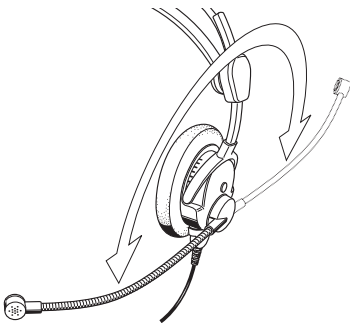
## Delivery includes

- HMEC 46 headset
- Cable clip
- Wind and pop screen
- Instructions for use
- Carry bag
- EASA Form 1

## Operation

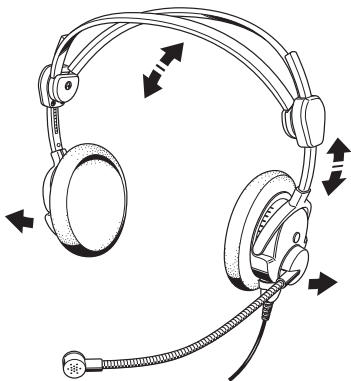
### Turning the microphone boom

The microphone boom can be rotated. This allows the headset to be worn with the microphone boom positioned on either the left or right-hand side of the head.



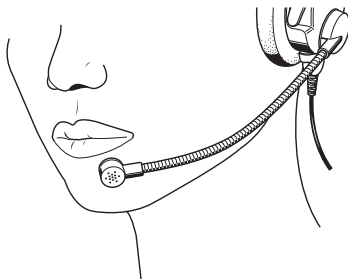
## Putting on the headset

When putting on the headset, the patented two-piece headband adjusts automatically.



## Positioning the microphone

Bend the flexible microphone boom so that the microphone is placed at the corner of the mouth. Maintain a distance of approx. 2 cm between microphone and mouth.



## Flipping away one earcup

The headset features a “flip-away” earcup for single-sided listening.



## Adjusting the volume directly on the intercom

Connect the headset to the corresponding sockets of your intercom. Adjust the volume directly on the intercom.

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### **CAUTION!** Hearing damage due to high volumes!



This headset is capable of producing high sound pressure levels. Higher volumes or longer durations can damage your hearing!

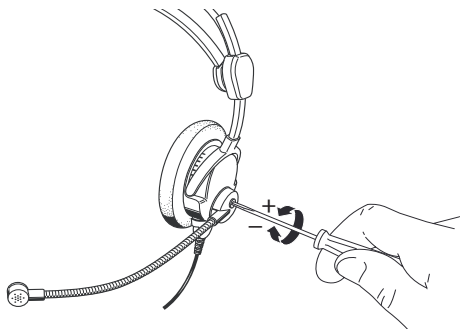
Set the volume to a medium level. Make sure that you can hear critical sounds such as warning alarms.

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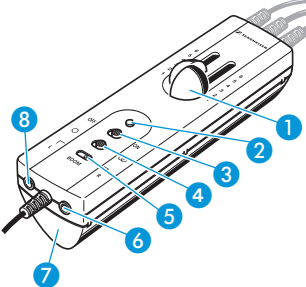


## Adjusting the microphone sensitivity

The microphone sensitivity has been factory pre-set to 40 mV/Pa as per RTCA DO-214. You can change the microphone sensitivity by turning a small screwdriver in the direction of the arrow.

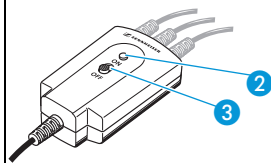


# The operating controls of the HMEC 46

| Operating control I  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>① Volume controls</li> <li>② LED</li> <li>③ NoiseGard™ ON/OFF switch</li> <li>④ Mono/stereo switch</li> <li>⑤ BOOM switch L/R</li> <li>⑥ 3.5 mm jack socket</li> <li>⑦ Battery compartment</li> <li>⑧ 2.5 mm jack socket</li> </ul> |

| Headset with operating control I | Operating element |   |   |   |   |   |   |   |
|----------------------------------|-------------------|---|---|---|---|---|---|---|
|                                  | ①                 | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ |
| HMEC 46-BV-K                     | x                 | x | x | x | x | x | x | x |
| HMEC 46-BV-CP                    | x                 | x | x |   | x |   | x |   |
| HMEC 46-B-K                      |                   | x | x |   |   |   | x |   |
| HMEC 46-B-CP                     |                   | x | x |   |   |   | x |   |
| HMEC 46-V-KP                     | x                 | x | x | x | x |   |   |   |
| HMEC 46-V-RP                     | x                 | x | x | x | x |   |   |   |
| HMEC 46-V-CP                     | x                 | x | x |   | x |   |   |   |

## Operating control II



2 LED

3 NoiseGard™ ON/OFF switch

| Headset with operating control II | Operating element |   |   |   |   |   |   |   |
|-----------------------------------|-------------------|---|---|---|---|---|---|---|
|                                   | 1                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| HMEC 46-CP                        |                   | x | x |   |   |   |   |   |
| HMEC 46-KP                        |                   | x | x |   |   |   |   |   |
| HMEC 46-NP                        |                   | x | x |   |   |   |   |   |

# Using the headset

## Switching NoiseGuard™ on/off

The NoiseGuard™ ON/OFF switch ❸ allows you to switch the NoiseGuard™ active noise compensation on or off. With NoiseGuard™ switched off, the headset can be used as a conventional headset.

- ▶ Set the NoiseGuard™ ON/OFF switch ❸ to the desired position:

ON: NoiseGuard™ is switched on. The LED ❷ lights up, indicating the battery charge status (see page 11) or power supply via the aircraft DC power supply system.

OFF: NoiseGuard™ is switched off. The LED ❷ is off.

## Adjusting the volume

The two slide volume controls ❶ allow you to adjust the volume for the left and right channel separately.

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### CAUTION! Hearing damage due to high volumes!



This headset is capable of producing high sound pressure levels. Higher volumes or longer durations can damage your hearing!

Set the volume to a medium level. Make sure that you can hear critical sounds such as warning alarms.

- 
- ▶ Use the two volume controls ❶ to adjust the desired volume.

## Switching between mono and stereo mode

The mono/stereo switch ④ allows you to switch between mono (○) and stereo (∞) mode, depending on the intercom system.

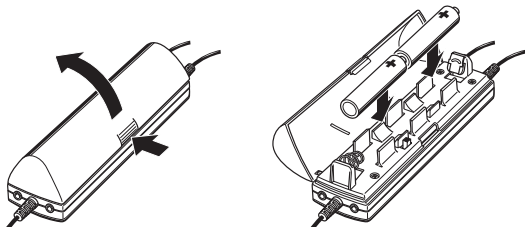
- ▶ Set the mono/stereo switch ④ to the desired position: mono (○) or stereo (∞).

## Changing the left and right stereo channel

The position "R" or "L" of the BOOM switch ⑤ corresponds to the position of the microphone on the left or right side of the mouth. When the microphone boom is rotated to permit left or right side microphone orientation, the BOOM switch allows you to correctly assign the audio channels (L/R) to the appropriate headphone sides. This enables the correct orientation of the volume controls and any stereo audio signals. To move the BOOM switch, use a pointed tool.

## Powering NoiseGard™ via two (rechargeable) batteries

- ▶ Insert two 1.5 V AA alkaline batteries (IEC LR 6) or two 1.2 V AA rechargeable batteries (IEC LR 6). Observe correct polarity when inserting the batteries.



The operating time with batteries/rechargeable batteries is approx. 100 hours.

With NoiseGard™ switched on (see page 10), the LED ② provides information on the remaining battery/rechargeable battery capacity.

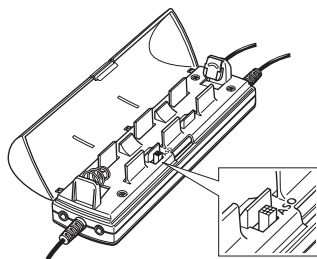
LED ② lights up yellow: The battery capacity is sufficient.

LED ② lights up red: The batteries are flat.  
Replace the batteries.

### Activating the "auto shut-off" function

The battery-saving "auto shut-off" function automatically switches the NoiseGard™ electronics off when the headset is disconnected from the intercom or when the aircraft avionics are switched off. The headset is delivered ex-works with the "auto shut-off" function deactivated. You can activate "auto shut-off" as follows:

- Set the switch to the position ASO.



## Connecting a mobile telephone

The 2.5 mm jack socket **8** allows you to connect a mobile telephone. For this purpose, the NoiseGard™ active noise compensation must be switched on and the microphone connector must be connected to the aircraft radio/intercom. A suitable adapter for your mobile telephone with 2.5 mm jack socket is available from your Sennheiser agent.

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### **CAUTION!** Danger of accident due to reduced attention!



Making telephone calls or operating the mobile telephone limits your attention and may cause accidents.

During flight operation, do not use the headset for telephone calls!

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- ▶ Connect the audio cable to the 2.5 mm jack socket **8** on the operating control **I** and to the corresponding jack socket on your mobile telephone.

You can adjust the volume of the mobile telephone via the headset's operating control. However, the functions of the mobile telephone cannot be controlled via the headset's operating control.

- ▶ Operate your mobile telephone as usual and observe the instructions of the manufacturer.

The latest information on cell phone compatibility is available on the internet site at [www.sennheiser.com](http://www.sennheiser.com).

- ▶ Search under "Products", "Aviation" and "more info ...".

## Connecting an additional audio player

The 3.5 mm jack socket ⑥ allows you to connect and listen to an audio player (not supplied) through the headset. For this purpose, the NoiseGard™ active noise compensation must be switched on.

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### CAUTION! Danger of accident due to reduced attention!



Listening to music or operating an audio device limits your attention and may cause accidents.

During flight operation, do not use the headset for listening to additional audio sources!

### CAUTION! Hearing damage due to high volumes!



This headset is capable of producing high sound pressure levels. Higher volumes or longer durations can damage your hearing!

Set the volume to a medium level. Make sure that you can hear critical sounds such as warning alarms.

- 
- ▶ Connect the audio cable to the 3.5 mm jack socket ⑥ on the operating control I and to the corresponding jack socket on your audio player.



## Care and maintenance

### Cleaning the headset

Use a soft, slightly damp cloth to clean the headset from time to time. If the headset is very dirty, use a cloth dampened with mild, soapy water.

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**CAUTION!** Danger of short-circuit due to the ingress of water!



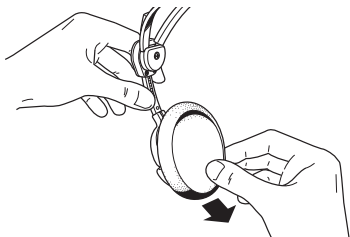
Water entering the housing of the headset can cause a short-circuit and damage the electronics.

Use only a slightly damp cloth to clean the headset. Do not use any solvents or cleansing agents.

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### Replacing the earpads

For reasons of hygiene, the earpads should be replaced from time to time. Grasp the edge of the foam earpad behind the earcup as shown and peel it up and away from the earcup. Slide the new earpad onto the earcup. Repeat for the other earcup.



## Accessories and spare parts

By changing the cables, you can simply retrofit different operating controls (see “The operating controls of the HMEC 46” on page 8 and 9) or connectors (see “Product variants” on page 17) to your headset.

- Cable -CP Cat. No. 500852
- Cable -V-CP Cat. No. 500846
- Cable -B-CP Cat. No. 500837
- Cable -BV-CP Cat. No. 500838
- Cable -KP Cat. No. 500842
- Cable -V-KP Cat. No. 500848
- Cable -B-K Cat. No. 502183
- Cable -BV-K Cat. No. 500839
- Cable -NP Cat. No. 500855
- Cable -V-RP Cat. No. 500853
- Audio cable, length 1.4 m,  
with two 3.5 mm stereo jack plugs Cat. No. 520316
- Audio cable, length 1.4 m,  
with two 2.5 mm jack plugs Cat. No. 520317
- Cable clip Cat. No. 044740
- Earpads (1 pair) Cat. No. 515295
- Earpads (100 pairs) Cat. No. 515296
- Wind and pop screen Cat. No. 515297
- Wind and pop screen  
(any number of items) Cat. No. 514127
- Headband padding (1 pair) Cat. No. 515629

## Product variants

| Model         | Cat. No.<br>Part Number   | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ |
|---------------|---------------------------|---|---|---|---|---|---|---|---|---|---|
| HMEC 46       | 500854<br>046-35          |   |   |   |   |   |   |   |   |   |   |
| HMEC 46-CP    | 500472<br>046-35-999-3211 | x | x |   |   |   |   | x |   |   | x |
| HMEC 46-V-CP  | 500473<br>046-35-999-3251 | x | x |   |   |   |   | x |   | x |   |
| HMEC 46-B-CP  | 500478<br>046-35-999-2291 | x | x |   |   |   |   | x | x | x |   |
| HMEC 46-BV-CP | 500479<br>046-35-999-2281 | x | x |   |   |   |   | x | x | x |   |
| HMEC 46-KP    | 500475<br>046-35-999-3111 | x |   | x | x |   |   | x |   |   | x |
| HMEC 46-V-KP  | 500476<br>046-35-999-3161 | x |   | x | x |   |   | x |   | x |   |
| HMEC 46-B-K   | 502180<br>046-35-999-1191 | x |   | x | x |   |   |   | x | x |   |
| HMEC 46-BV-K  | 500477<br>046-35-999-1171 | x |   | x | x |   |   |   | x | x |   |
| HMEC 46-NP    | 500474<br>046-35-999-3811 | x |   |   |   | x |   | x |   |   | x |
| HMEC 46-V-RP  | 500471<br>046-35-999-3661 | x |   |   |   |   | x | x |   | x |   |

- ① Single-sided round cable, length 1.85 m
- ② XLR-5 connector
- ③ ¼" (6.3 mm) jack plug (headphones)
- ④ PJ-068 equivalent (microphone)
- ⑤ 8-pin Neutricon connector
- ⑥ 6-pin Redel connector
- ⑦ Aircraft powered
- ⑧ Battery powered
- ⑨ Operating control I (see page 8)
- ⑩ Operating control II (see page 9)

# Specifications

## Headphones

|                          |  |
|--------------------------|--|
| Transducer principle     | dynamic, open  |
| Ear coupling             | supra-aural  |
| Frequency response       | 20–14,000 Hz   |
| Impedance<br>mono/stereo | 600 $\Omega$ / 1.200 $\Omega$                                |
| Characteristic SPL       | 93 dB SPL at 1 kHz, 1 mW,<br>mono<br>95 dB SPL at 1 kHz, 1 V |
| Active attenuation       | $\geq 10$ dB (300–700 Hz)                                    |
| THD                      | $< 10$ % at 110 dB SPL<br>(300–3,000 Hz)                     |
| Contact pressure         | approx. 3 N  |

## Microphone incl. preamplifier

|                       |   |
|-----------------------|---|
| Type                  | MKE 46  |
| Transducer principle  | pre-polarized condenser<br>microphone,<br>noise-compensating                          |
| Frequency response    | 350–6,000 Hz  |
| Output voltage        | adjustable from 17–100 mV/Pa,<br>40 mV/Pa (factory pre-set)<br>= 400 mV at 114 dB SPL |
| Terminating impedance | 150–2,200 $\Omega$  |
| Supply voltage        | 8–16 V DC   |

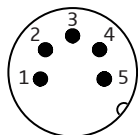
## General data

|                                |   |
|--------------------------------|---|
| Temperature range              | Operation: -15 °C to +55 °C<br>Storage: -55 °C to +70 °C  |
| Weight without cable           | approx. 150 g   |
| Power supply for<br>NoiseGard™ | 2x 1.5 V AA alkaline battery<br>(IEC LR 6)<br>or<br>2x 1.2 V AA rechargeable<br>battery (IEC LR 6)<br>or<br>12–35 V DC via the aircraft<br>DC power supply system<br>(on suitably equipped aircraft),<br>max. 50 mA |

# Connector assignment

## HMEC 46-CP, -V-CP, -B-CP, -BV-CP

Solder side



- 1 Audio Hi
- 2 Audio Lo / DC-□
- 3 Microphone Hi
- 4 Microphone Lo
- 5 Power supply NoiseGard™ (DC+)



## HMEC 46-NP

Solder side

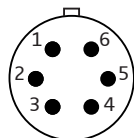


- 1 Audio Hi
- 2 Audio Lo
- 3 not assigned
- 4 Microphone Lo
- 5 Microphone Hi
- 6 not assigned
- 7 DC-□
- 8 Power supply NoiseGard™ (DC+)

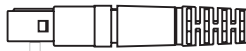


## HMEC 46-V-RP

Solder side

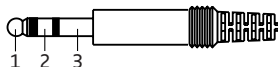


- 1 Power supply NoiseGard™ (DC+)
- 2 Audio Lo / DC-□
- 3 Audio Hi left
- 4 Audio Hi right
- 5 Microphone Hi
- 6 Microphone Lo

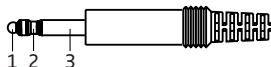


## HMEC 46-KP, -V-KP, -B-K, -BV-K

### 1/4" (6.3 mm) jack plug



### PJ-068 equivalent



#### HMEC 46-KP

- 1 Audio Hi left
- 2 not assigned
- 3 Audio Lo / DC-

- 1 Power supply NoiseGard™ (DC+)
- 2 Microphone Hi
- 3 Microphone Lo / DC-

#### HMEC 46-V-KP

- 1 Audio Hi left
- 2 Audio Hi right
- 3 Audio Lo / DC-

- 1 Power supply NoiseGard™ (DC+)
- 2 Microphone Hi
- 3 Microphone Lo / DC-

#### HMEC 46-B-K

- 1 Audio Hi
- 2 not assigned
- 3 Audio Lo

- 1 not assigned
- 2 Microphone Hi
- 3 Microphone Lo

#### HMEC 46-BV-K

- 1 Audio Hi left
- 2 Audio Hi right
- 2 Audio Lo

- 1 not assigned
- 2 Microphone Hi
- 2 Microphone Lo

# Manufacturer Declarations

## Warranty regulations

The guarantee period for this Sennheiser product is 60 months from the date of purchase. Excluded are accessory items, rechargeable or disposable batteries that are delivered with the product; due to their characteristics these products have a shorter service life that is principally dependent on the individual frequency of use.

The guarantee period starts from the date of original purchase. For this reason, we recommend that the sales receipt be retained as proof of purchase. Without this proof (which is checked by the responsible Sennheiser service partner) you will not be reimbursed for any repairs that are carried out.

Depending on our choice, guarantee service comprises, free of charge, the removal of material and manufacturing defects through repair or replacement of either individual parts or the entire device. Inappropriate usage (e.g. operating faults, mechanical damages, incorrect operating voltage), wear and tear, force majeure and defects which were known at the time of purchase are excluded from guarantee claims. The guarantee is void if the product is manipulated by non-authorised persons or repair stations.

In the case of a claim under the terms of this guarantee, send the device, including accessories and sales receipt, to the responsible service partner. To minimise the risk of transport damage, we recommend that the original packaging is used. Your legal rights against the seller, resulting from the contract of sale, are not affected by this guarantee. The guarantee can be claimed in all countries outside the U.S. provided that no national law limits our terms of guarantee.



## CE Declaration of Conformity



This equipment is in compliance with the essential requirements and other relevant provisions of Directive 89/336/EU. The declaration is available on the internet site at [www.sennheiser.com](http://www.sennheiser.com).

Before putting the device into operation, please observe the respective country-specific regulations!


## Batteries or rechargeable batteries



The supplied batteries or rechargeable batteries can be recycled. Please dispose of them as special waste or return them to your specialist dealer. In order to protect the environment, only dispose of exhausted batteries.







Sennheiser electronic GmbH & Co. KG  
30900 Wedemark, Germany  
Phone +49 (5130) 600 0  
Fax +49 (5130) 600 300  
[www.sennheiser.com](http://www.sennheiser.com)